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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/629,207

07/29/2003

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13935US02

5674

23446 7590 10/02/2009
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EXAMINER

RAHMAN, FAHMIDA

ART UNIT

PAPER NUMBER

2116

MAIL DATE

DELIVERY MODE

10/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/629,207	Applicant(s) LEE ET AL.	
	Examiner FAHMIDA RAHMAN	Art Unit 2116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-43, 45, 46 and 49-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 34-43, 45, 46 and 49-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This final action is in response to communications filed on 6/4/09.
2. Claims 1-33, 44, 47-48 have been cancelled.
3. Claims 34, 35 have been amended.
4. Claims 49-60 have been added.
5. Thus, claims 34-43, 45-46, 49-60 are pending.

Claim Objections

6. Claims 50-60 are objected to because of the following informalities:

Claim 50 recites "at power management state" in line 6, which should be changed to "a power management state". In addition, claim 50 recites "volume or traffic" in line 8, which should be changed to "volume of traffic".

Claims 51-60 depend on claim 50 and incorporate the informalities.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 34-37, 39-41, 46, 49-52, 54-56,60 are rejected under 35

U.S.C. 103(a) as being unpatentable over Mills et al (US Patent 6795450), in view of Lin (US Patent 6442174).

For claim 34, Mills et al teach the following limitations: A method for optimizing power consumption (line 47 of column 10) in a communication system (lines 44-50 of column 10; Fig 1) comprising a network interface and a host computer (lines 39-41 of column 11 mention that the invention is applicable for network nodes. Lines 45-60 of column 11 mention that the network device is used to refer to a computer linked to a network via network interface card), the method comprising:

- determining, by the network interface, at least one power mode of the host computer from a plurality of possible power modes (lines 45-50 of column 10 mention that the network nodes may be "idle" or have entered "sleep" or "suspended" mode, when communication between a node and a hub is limited. Lines 60-65 of column 9 mention that the network may have full power operation mode for supporting full high bandwidth communication. Thus, the network interface can determine a power mode among a plurality of possible modes, such as "full communication" or "limited communication", based on amount of communication);
- and selecting, by the network interface, at least one network interface power management state (link suspend state mentioned in lines 60-65 of

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column 9) from a plurality of possible power management states based on the at least one power mode determined (lines 44-50 of column 10; lines 60-65 of column 9), wherein selecting further comprises (Fig 3):

- configuring a PHY layer to restart and negotiate at a predetermined speed (330 in Fig 3 selects state 300 if link is lost. 330 moves to 310 where auto negotiation is performed at a predetermined speed; lines 15-35 of column 4; line 65 of column 4 through line 22 of column 5; lines 30-40 of column 8; lines 25-55 of column 14)
- advertising capabilities until link presence is detected (lines 20-35 of column 4 and line 65 of column 4 through line 15 of column 5 mention that PHY advertise the capabilities).

Mills advertises the capabilities with highest possible mode first (lines 10-15 of column 5). Mills does not teach the following limitations:

Incrementing advertised capabilities until link presence is detected

Lin discloses a method comprising:

- selecting one network interface power management state (selecting transmission protocol having lower transmission performance as explained in lines 25-30 of column 3) from a plurality of possible power management states (lines 25-30 of column 3 mention two states: transmission protocol with higher transmission performance and transmission protocol with lower transmission performance) based on

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- power mode (lines 58-65 of column 4 mention that such selection is based on idle/data transmission state), wherein selecting further comprises:
- incrementing advertised capabilities until link presence is detected (lines 10-45 of column 5 mention that modified auto-negotiation is adopted where priority table of Fig 6 is used. Therefore, 10BaseT is advertised first and then, if no device is found to establish the link, 100BaseT is chosen. Thus, advertised capabilities are increased until link presence is detected).

It would have been obvious to one ordinary skill in the art at the time the invention was made to combine the teachings of Mills and Lin. One ordinary skill would be motivated to start with lower capabilities, and later increase the capabilities, as provides a mechanism for power saving (lines 1-5 of column 3 in Lin).

For claim 35, note lines 48-56 of column 12 of Mills, which mentions that network traffic intensity is detected and a power management mode is selected based on traffic.

For claim 36, lines 54-56 of column 13 and lines 29-35 of column 13 of Mills mention that the system improves implementation of a PC's ACPI implementation. Since, ACPI supports D0-D3 power management states, the ACPI compatible PCs in LAN can provide four power management states: fully operational D0, in between power management states D1-D2, Wake On LAN D3

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hot, "fully powered down" in D3 cold. This invention also provides two types of idle state: standard Idle or Link Suspend Idle as shown in Fig 3.

For claim 37, lines 60-65 of column 9 of Mills mention that the full power mode supports full high bandwidth communication. Lines 23-26 of column 4 (Mills et al) mention that the speed of the link is set up by auto-negotiation to set up the operation mode of the communications link. Thus, the communication device operates at a frequency supporting high bandwidth transmission.

For claim 39, lines 10-15 of column 5 (Mills) mention that the 100BASE-TX will reconfigure it to lower 10BASE-T. Thus, the throughput is reduced when a high capacity PHY is connected to a low capacity PHY.

For claim 40, lines 10-15 of column 5 (Mills) mention that the 100BASE-TX will reconfigure it to lower 10BASE-T. The highest common operational mode is chosen. Thus, the throughput is reduced when a high capacity PHY is connected to a low capacity PHY. Since, the invention is applicable to 1000BASE-T, the throughput would be reduced to 1000BASE-T to 10BASE-T when 1000BASE-T would be connected to 10Base-T.

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For claim 41, lines 1-5 of column 23 (Mills) mention about switching off the transmitter, which includes reducing clock speed.

For claim 46, lines 50-55 of column 14 (Mills) mention about lost data detection on a link. The MAC is the controlling layer of PHY as shown in Fig 1. Thus, the reduction of duty cycle (lines 5-10 of column 10) requires switching clock speed from the MAC layer.

Claims 49-52, 54-56, 60 recite the system claims corresponding to the method claims 34-37, 39-41, 46. Thus, the claims 49-52, 54-56, 60 are unpatentable over the Mills et al, in view of Lin.

8. Claims 38 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills et al (US Patent 6795450), in view of Lin (US Patent 6442174), further in view of applicant's admission of prior art.

For claims 38 and 53, Mills et al and Lin do not teach that the frequency to be 62.5 MHz. Applicant mentions that the frequency 62.5 MHz is used to support 1000BASE-T in [39] of page 11. Since, the invention of Mills et al is applicable to 1000BASE-T, the frequency should be 62.5 MHz.

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9. Claims 42 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills et al (US Patent 6795450), in view of Lin (US Patent 6442174), further in view of Yamamoto et al (US Patent 5778237).

For claims 42 and 57, Mills et al and Lin do not teach reducing clock for power management. Although, Mills teaches the reduced link speed (lines 20-30 of column 4). Yamamoto et al teach that the clock is reduced to 6.25 MHz in a power management state (lines 5-15 of column 1; Fig 9B).

It would have been obvious to one ordinary skill in the art to combine the teachings of Mills et al, Lin and Yamamoto et al. One ordinary skill would be motivated to reduce clock speed to 6.25 MHz, since 10BASE-T can support such clock speed. The clock reducing mechanism is widely used in the art for reducing power consumption.

10. Claim 43, 45, 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills et al (US Patent 6795450), in view of Lin (US Patent 6442174), in view of Gaur (US Patent Application Publication 2003/0088797).

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For claims 43 and 58, Mills and Lin does not teach detecting host computer is using battery or AC power and selecting the power state based on the detection of whether the host computer is using battery or AC power. Gaur teaches detecting host computer is using battery or AC power and selecting the power state based on the detection of whether the host computer is using battery or AC power (Fig 2).

It would have been obvious for one ordinary skill in the art at the time the invention was made to combine the teachings of Mills, Lin and Gaur. One ordinary skill would be motivated to determine whether the host is connected to AC power or battery, and selecting the power state based on that, since that makes the most efficient use of power without sacrificing network connectivity.

For claims 45 and 59, Mills teaches detecting absence of traffic (lines 55-57 of column 12 mention that PHY power consumption is reduced when a node is placed in sleep mode, which includes absence of traffic) and selecting state where PHY uses polling (lines 5-10 of column 13). Mills and Lin do not teach about battery usage by host computer. Gaur teaches detecting host computer is using battery or AC power and selecting the power state based on the detection of whether the host computer is using battery or AC power (Fig 2). It would have been obvious for one ordinary skill in the art to determine whether the host is

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connected to battery, since that makes the most efficient use of power without sacrificing network connectivity.

Response to Arguments

Applicant's arguments have been considered but they are moot in view of new grounds of rejections. As Mills is still relied upon for rejections, Examiner is addressing arguments regarding Mills.

Regarding Applicant arguments about col 14, lines 13-22 of Mills, where two link partners do not re-negotiate a link, Examiner points to lines 45-67 of column 18, which mention the conditions when to reset/negotiate and when not to reset.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In

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no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FAHMIDA RAHMAN whose telephone number is (571)272-8159. The examiner can normally be reached on Monday Tuesday Thursday 8:30 -6:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Fahmida Rahman/
Examiner
Art Unit 2116

/Thomas Lee/
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